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FIELD CODE - 'AND' OPERATOR ASSUMED 'CHELATIN) (3P) '
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'METAL (3P) '

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L1        1725 (ECS OR (GLUTAMYL (W) CYSTEINE (W) SYNTHETASE) OR PHYTOCHELATIN)
               (3P) (GENE OR NUCLEIC OR NUCLEOTIDE OR POLYNUCLEOTIDE OR PEPTID
               E OR POLYPEPTIDE OR DNA OR EXPRESSION OR OVEREXPRESSION) AND
               METAL (3P) (TOLERAN? OR RESISTAN?)

=> s (ECS or (glutamyl (w) cysteine (w) synthetase) or phytochelatin) (p) (gene or nucleic or
nucleotide or polynucleotide or peptide or polypeptide or DNA or expression or overexpression)
and metal (p) (toleran? or resistan?)
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PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'CHELATIN) (P) '
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  29 FILES SEARCHED...
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'CHELATIN) (P) '
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'METAL (P) '
  39 FILES SEARCHED...
  41 FILES SEARCHED...
L2 1654 (ECS OR (GLUTAMYL (W) CYSTEINE (W) SYNTHETASE) OR PHYTOCHELATIN) (P) (GENE OR NUCLEIC OR NUCLEOTIDE OR POLYNUCLEOTIDE OR PEPTIDE OR POLYPEPTIDE OR DNA OR EXPRESSION OR OVEREXPRESSION) AND METAL (P) (TOLERAN? OR RESISTAN?)

=> s l2 and (tobacco or nicotiana or silene or populus or poplars)
  24 FILES SEARCHED...
L3 445 L2 AND (TOBACCO OR NICOTIANA OR SILENE OR POPULUS OR POPLARS)

=> s l3 and (phytoremediation or phytoremediate or phytoextraction ot phytoextract or phytomining or phytomine)
  21 FILES SEARCHED...
L4 32 L3 AND (PHYTOREMEDIATION OR PHYTOREMEDIATE OR PHYTOEXTRACTION OT PHYTOEXTRACT OR PHYTOMINING OR PHYTOMINE)

=> d l4 1-32 ab

L4 ANSWER 1 OF 32 CAPLUS COPYRIGHT 2006 ACS on STN
AB From a number of wild plant species growing on soils highly contaminated by heavy **metals** in Eastern Spain, **Nicotiana** glauca R. Graham (shrub **tobacco**) was selected for biotechnol. modification, because it showed the most appropriate properties for **phytoremediation**. This plant has a wide geog. distribution, is fast-growing with a high biomass, and is repulsive to herbivores. Following Agrobacterium mediated transformation, the induction and **overexpression** of a wheat **gene** encoding **phytochelatin** synthase (TaPCS1) in this particular plant greatly increased its **tolerance** to **metals** such as Pb and Cd, developing seedling roots 160% longer than wild type plants. Seedlings of transformed plants grown in mining soils containing high levels of Pb (1572 ppm) accumulated double concentration of this heavy **metal** than wild type. These results indicate that the transformed N. glauca represents a highly promising new tool for use in **phytoremediation** efforts.

L4 ANSWER 2 OF 32 CAPLUS COPYRIGHT 2006 ACS on STN
AB The present disclosure provides methods, recombinant **DNA** mols., and transgenic plant cells, plant tissue and plants which contain and express at least one **phytochelatin** biosynthetic coding sequence under the regulatory control of the strong ACT2 constitutive promoter or the light-inducible SRS1 promoter and/or a plant-expressible arsenate reductase coding sequence. Optionally the plant expressing the at least one **phytochelatin** biosynthetic enzyme coding sequence can also express a mercuric ion reductase coding sequence. The **phytochelatin** biosynthetic enzymes include γ-glutamylcysteine synthase, glutathione synthase and **phytochelatin** synthase. The transgenic plants are **tolerant** of heavy **metal** ions like cadmium, arsenate and/or mercury, and can accumulate those ions from a contaminated environment, to thus, effect **phytoremediation** of a contaminated soil or water environment which contains mercury, cadmium and/or arsenate ions.

L4 ANSWER 3 OF 32 CAPLUS COPYRIGHT 2006 ACS on STN
AB Plant nutrient uptake is an active process, requiring energy to accumulate

essential elements at higher levels in plant tissues than in the soil solution, while the presence of toxic **metals** or excess of nutrients requires mechanisms to modulate the accumulation of ions. **Genes** encoding ion transporters isolated from plants and yeast were used to identify sugarcane putative homologues in the sugarcane expressed sequence tag (SUCEST) database. Five cluster consensi with sequence homol. to plant high-affinity phosphate transporter **genes** were identified. One cluster consensus allowed the prediction of a full-length protein containing 541 amino acids, with 81% amino acid identity to the **Nicotiana** tabacum NtPT1 **gene**, consisting of 12 membrane-spanning domains divided by a large hydrophilic charged region. Putative homologues to Arabidopsis thaliana micronutrient transporter **genes** were also detected in some of the SUCEST libraries. Iron uptake in grasses involves the release of the phytosiderophore mugeneic acid (MA) which chelate Fe3+ which is then absorbed by a specific transporter. Sugarcane expressed sequence tag (EST) homologous to **genes** coding for three enzymes of the mugeneic acid biosynthetic pathway [nicotianamine synthase; nicotianamine transferase; and putative mugeneic acid synthetase (ids3)] and a putative Fe3+-phytosiderophore transporter were detected. Seven sugarcane sequence clusters were identified with strong homol. to members of the ZIP **gene** family (ZIP1, ZIP3, ZIP4, IRT1 and ZNT1), while four clusters homologous to ZIP2 and three to ZAT were found. Homologues to members of another **gene** family, Nramp, which code for broad-specificity transition **metal** transporters were also detected with constitutive **expression**. Partial transcripts homologous to **genes** encoding γ-glutamylcysteine synthetase, glutathione synthetase, and **phytochelatin** synthase (responsible for biosynthesis of the **metal** chelator **phytochelatin**) and all four types of the major plant **metal**-chelator **peptide** metallothionein (MT) were identified: Type I MT being the most abundant (>1% of seed-library reads), followed by Type II which had a similar pattern of **expression** as that described for Arabidopsis MT. Identifying and understanding the **expression** of **genes** associated with nutrient uptake and **metal tolerance** could lead to the development of more nutrient-efficient sugarcane cultivars, or might allow the use of sugarcane as a hyper-accumulator plant for the restoration of contaminated areas in **phytoremediation** programs.

L4 ANSWER 4 OF 32 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
AB From a number of wild plant species growing on soils highly contaminated by heavy **metals** in Eastern Spain, **Nicotiana** glauca R. Graham (shrub **tobacco**) was selected for biotechnological modification, because it showed the most appropriate properties for **phytoremediation**. This plant has a wide geographic distribution, is fast-growing with a high biomass, and is repulsive to herbivores. Following Agrobacterium mediated transformation, the induction and **overexpression** of a wheat **gene** encoding **phytochelatin** synthase (TaPCS1) in this particular plant greatly increased its **tolerance** to **metals** such as Pb and Cd, developing seedling roots 160% longer than wild type plants. In addition, seedlings of transformed plants grown in mining soils containing high levels of Pb (1572 ppm) accumulated double concentration of this heavy **metal** than wild type. These results indicate that the transformed N. glauca represents a highly promising new tool for use in **phytoremediation** efforts.

L4 ANSWER 5 OF 32 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
AB Plant nutrient uptake is an active process, requiring energy to accumulate essential elements at higher levels in plant tissues than in the soil solution, while the presence of toxic **metals** or excess of nutrients requires mechanisms to modulate the accumulation of ions. **Genes** encoding ion transporters isolated from plants and yeast were used to identify sugarcane putative homologues in the sugarcane expressed sequence tag (SUCEST) database. Five cluster consensi with sequence homology to plant high-affinity phosphate transporter **genes** were identified. One cluster consensus allowed the prediction of a full-length protein containing 541 amino acids, with 81%

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(EST) homologous to **genes** coding for three enzymes of the
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another **gene** family, Nramp, which code for broad-specificity
transition **metal** transporters were also detected with
constitutive **expression**. Partial transcripts homologous to
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synthetase, and **phytochelatin** synthase (responsible for
biosynthesis of the **metal** chelator **phytochelatin**) and
all four types of the major plant **metal**-chelator **peptide**
metallothionein (MT) were identified: Type I MT being the most abundant
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pattern of **expression** as that described for Arabidopsis MT.
Identifying and understanding the **expression** of **genes**
associated with nutrient uptake and **metal tolerance**
could lead to the development of more nutrient-efficient sugarcane
cultivars, or might allow the use of sugarcane as a hyper-accumulator
plant for the restoration of contaminated areas in
phytoremediation programs.

L4 ANSWER 6 OF 32 MEDLINE on STN
AB From a number of wild plant species growing on soils highly contaminated
by heavy **metals** in Eastern Spain, **Nicotiana** glauca R.
Graham (shrub **tobacco**) was selected for biotechnological
modification, because it showed the most appropriate properties for
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Following Agrobacterium mediated transformation, the induction and
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phytochelatin synthase (TaPCS1) in this particular plant greatly
increased its **tolerance** to **metals** such as Pb and Cd,
developing seedling roots 160% longer than wild type plants. In addition,
seedlings of transformed plants grown in mining soils containing high
levels of Pb (1572 ppm) accumulated double concentration of this heavy
metal than wild type. These results indicate that the transformed
N. glauca represents a highly promising new tool for use in
phytoremediation efforts.

L4 ANSWER 7 OF 32 EPFULL COPYRIGHT 2006 EPO/FIZ KA on STN

L4 ANSWER 8 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
ABEN Genetically modified plants able to accumulate heavy metals in shoots
and methods of removing and possibly recovering said heavy metals, using
said genetically modified plants. Said genetically modified plants
include more than one copy of at least a sequence encoding a
P<sb>1B</sb>-type ATPase of the Zn<sp>2+</sp>/Co<sp>2+</sp>/Cd<sp>2+</sp
>/Pb<sp>2+</sp> subclass and that they overexpress said
P<sb>1B</sb>-type ATPase.
ABFR Cette invention concerne des plantes genetiquement modifiees capables de
concentrer des metaux lourds dans leurs pousses et des procedes
d'extraction, voire de recuperation desdits metaux lourds au moyen de
ces plantes. Lesdites plantes genetiquement modifiees comprennent plus
d'une copie de la sequence codant pour une ATPase de type P<sb>1B</sb>
de la sous-classe Zn<sp>2+</sp>/Co<sp>2+</sp>/Cd<sp>2+</sp>/Pb<sp>2+</sp
> et elles surexpriment ladite ATPase de type P<sb>1B</sb>.

L4 ANSWER 9 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN Genetically modified plants able to accumulate heavy metals in shoots and methods of removing and possibly recovering said heavy metals, using said genetically modified plants. Said genetically modified plants include more than one copy of at least a sequence encoding a P<sb>1B</sb>-type ATPase of the Zn<sp>2+</sp>/Co<sp>2+</sp>/Cd<sp>2+</sp >/Pb<sp>2+</sp> subclass and that they overexpress said P<sb>1B</sb>-type ATPase.

ABFR L'invention concerne des plantes genetiquement modifiees, aptes a accumuler des metaux lourds dans les pousses, ainsi que des methodes pour enlever et eventuellement recuperer lesdits metaux lourds, a l'aide desdites plantes genetiquement modifiees. Lesdites plantes genetiquement modifiees comprennent plus d'une copie d'au moins une sequence codant une ATPase de type P<SB>IB</SB> de la sous-classe Zn<sp>2+</sp>/Co<sp>2+</sp>/Cd<sp>2+</sp>/Pb<sp>2+</sp> et se caracterisent en ce qu'elles surexpriment ladite ATPase de type P<SB>IB</SB>.

L4 ANSWER 10 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN Plant tissue specific gene expression by way of repressor-operator complexes, has enabled outcomes including, without limitation, male sterility and engineered plants having root-specific gene expression of relevant proteins to clean environmental pollutants from soil and water. A mercury hyperaccumulation strategy requires that mercuric ion reductase coding sequence is strongly expressed. The actin promoter vector, A2pot, engineered to contain bacterial lac operator sequences, directed strong expression in all plant vegetative organs and tissues. In contrast, the expression from the A2pot construct was restricted primarily to root tissues when a modified bacterial repressor (LacIn) was coexpressed from the light-regulated rubisco small subunit promoter in above-ground tissues. Also provided are analogous repressor operator complexes for selective expression in other plant tissues, for example, to produce male sterile plants.

ABFR L'expression genetique a specificite tissulaire chez des plantes par l'intermediaire de complexes represseurs/operateurs permet d'obtenir des resultats positifs concernant, de maniere non exhaustive, la sterilite chez les plantes males, et les plantes transgeniques presentant une expression genetique a specificite radiculaire de proteines pertinentes pour supprimer les polluants environnementaux contenus dans le sol et dans l'eau.
Une strategie d'hyperaccumulation de mercure exige que la sequence codant pour la reductase de l'ion mercurique soit fortement exprimee. Le vecteur promoteur de l'actine, A2pot, construit pour comporter des sequences d'operateur lac bacteriennes entraine une forte expression dans tous les organes et tissus vegetatifs de plantes. A l'oppose, l'expression de la construction A2pot est restreinte, d'abord a des tissus radiculaires lorsqu'un represseur bacterien modifie (LacIn) est coexprime par le promoteur photoregule de petites sous-unites de rubisco, dans des tissus au-dessus du soluble Cette invention concerne en outre des complexes represseurs/operateurs analogues utilises a des fins d'expression selective dans d'autres tissus vegetaux, pour produire des plantes males steriles.

L4 ANSWER 11 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN The present invention concerns a method for modifying the growth characteristics of plants by modulating expression in a plant of a nucleic acid sequence encoding a metallothionein and/or modulating

activity in a plant of a metallothionein. The invention also relates to transgenic plants having modified growth characteristics, which plants have modulated expression of a nucleic acid encoding a metallothionein.

ABFR L'invention concerne un procede permettant de modifier les caracteristiques de croissance de plantes, par modulation, chez une plante, de l'expression d'une sequence d'acide nucleique codant une metallothioneine, et/ou par modulation, chez une plante, de l'activite d'une metallothioneine. Cette invention se rapporte en outre a des plantes transgeniques presentant des caracteristiques de croissance modifiees et chez lesquelles l'expression d'une sequence d'acide nucleique codant une metallothioneine a ete modulee.

L4 ANSWER 12 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN The invention relates to a method of decontaminating a metal-contaminated growth medium, using genetically-modified plants, algae or bacteria over a sufficient period of time for the metals to be absorbed and accumulated.

ABFR La presente invention concerne un procede permettant de decontaminer un milieu de croissance contamine par des metaux a l'aide de plantes, d'algues ou de bacteries genetiquement modifiees pendant une periode suffisante pour que les metaux soient absorbes et accumules

ABES La presente invencion provee un procedimiento para descontaminar un medio de crecimiento contaminado con metales utlizando plantas, algas o bacterias, modificadas geneticamente durante un periodo de tiempo suficiente para que los metales sean absorbidos y acumulados

L4 ANSWER 13 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN The present invention is related to new isolated and purified polynucleotide and polypeptide sequences of Thlaspi caerulescens, as well as their potential application in **phytoremediation**.

ABFR La presente invention se rapporte a de nouvelles sequences polypeptidiques et polynucleotidiques purifiees et isolees de Thlaspi caerulescens, ainsi qu'a leur application potentielle en **phytoremediation**.

L4 ANSWER 14 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN The present invention concerns a method for concentration contaminants or metals in a plant. The present invention also concerns a method for bioremediation. More specifically, the present invention concerns means for effecting bioremediation using plants having decreased availability of cytokinin relative to corresponding wild type plants. The present invention also relates to the use of plants with decreased cytokinin availability for concentrating contaminants or metals in these plants.

ABFR L'invention concerne un procede permettant de concentrer des contaminants ou des metaux dans une plante. Cette invention concerne egalement un procede de bioremediation. Plus specifiquement, cette invention concerne des moyens permettant de mettre en oeuvre une bioremediation a l'aide de plantes presentant une disponibilite plus faible de la cytokinine par rapport a des plantes de type sauvage correspondantes. La presente invention concerne egalement l'utilisation de plantes presentant une disponibilite plus faible de la cytokinine pour concentrer des contaminants ou des metaux dans ces plantes.

L4 ANSWER 15 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN A plastid transformation vector for stably transforming a plastid genome, comprising, as
operably-linked components, a first flanking sequence, at least one DNA sequence coding
for a polypeptide suitable for remediating a contaminant compound, and a second
flanking sequence, wherein a plant is stably transformed with the plastid transformation
vector, and the plant is capable of phytoremediating a comtaminant compound.

ABFR L'invention concerne un vecteur de transformation plastidique pour la transformation
stable de genome plastidique, qui comprend les elements a
liaison operationnelle suivants: premiere region flanquante,

au moins une sequence d'ADN codant un polypeptide qui se prete a la remediation d'un compose contaminant, et seconde region flanquante. En l'occurrence, on procede a la transformation stable d'une plante au moyen du vecteur de transformation plastidique, et la plante est capable d'assurer la **phytoremediation** d'un compose contaminant.

L4 ANSWER 16 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN A reporter system capable of giving rise to a directly monitorable phenotypic trait in a plant, in the presence of an outer stimulus such as for example a pollutant, is provided. The system optionally also has the ability to remediate soil. Genetically modified plants comprising said reporter system and optionally the remediation capability, a process for detection of soil pollution and optionally for bioremediating soil by employing said genetically modified plants, as well as the use of genetically modified plants for monitoring soil pollution and optionally for bioremediating soil are also provided.

ABFR La presente invention concerne un systeme de rapporteur capable de mettre en evidence une caracteristique phenotypique directement mesurable chez un vegetal, en la presence d'un stimulus externe, par exemple d'un polluant. Eventuellement, le systeme peut aussi permettre la biorestauration du soluble L'invention a egalement pour objet des vegetaux genetiquement modifies comprenant ledit systeme de rapporteur, et eventuellement la capacite de biorestauration, un procede pour detecter la pollution du sol et eventuellement pour realiser la biorestauration du sol par utilisation desdits vegetaux genetiquement modifies, ainsi que l'utilisation de vegetaux genetiquement modifies pour surveiller la pollution du sol et eventuellement realiser la biorestauration du soluble

L4 ANSWER 17 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN The present invention relates to **nucleic** acid fragments encoding amino acid sequences for **metal**-handling enzymes, such as copper chaperones, high affinity potassium transporters, metallothioneins, aluminium-stress induced proteins, cadmium **resistance** proteins, copper transporting ATPases, blue copper binding proteins, copper transporters, cadmium induced proteins, zinc transporters, zinc binding proteins and **phytochelatin** synthases, in plants and the use thereof for modifying **metal** handling in plants, including modification of plant heavy **metal** detoxification; modification of plant **tolerance** to **metals** such as copper, zinc, cadmium and aluminium; modification of plant capacity for accumulation or hyper-accumulation of **metals** such as cadmium; modification of plant intracellular **metal** trafficking pathways such as intracellular copper-delivery systems for the delivery of copper to ethylene receptors and transport of copper from senescing leaves; modification of plant uptake of nutrients such as potassium, zinc, manganese and copper; modification of plant capacity of essential heavy **metal** homeostasis; modification of plant metabolism and/or development associated with heavy **metals**; and modification of plant responses to toxic or suboptimal levels of **metals**.

ABFR La presente invention concerne des fragments d'acides nucleiques codant pour des sequences d'acides amines relatives a des metalloenzymes tels que chaperons a cuivre, transporteurs de potassium a haute affinite, metallothioneines, proteines inductibles sous l'action de contraintes dues a l'aluminium, proteines de resistance au cadmium, ATPases de transport du cuivre, proteines de liaison de la covellite, transporteurs du cuivre, proteines inductibles sous l'action du cadmium, transporteurs du zinc, proteines se liant au zinc et phytochelatine synthases, dans les plantes, et leurs utilisations aux fins suivantes : modification de la gestion des metaux par les plantes, dont modification de la detoxification des metaux lourds, modification de la tolerance des plantes aux metaux tels que le cuivre, le zinc, le cadmium et l'aluminium ; modification de la capacite de la plante pour accumulation ou sur-accumulation du cadmium ; modification des voies d'echange intracellulaires de metaux tels que des systemes intracellulaires d'acheminement du cuivre vers des recepteurs de l'ethylene et transport

du cuivre a partir de feuilles senescentes ; modification de l'assimilation par les plantes de nutriments tels que le potassium, le zinc, le manganese et le cuivre ; modification de la capacite d'homeostasie essentielle face aux metaux lourds; modification du metabolisme et/ou du developpement de la plante associe aux metaux lourds; et modification des reactions de la plantes a des niveaux toxiques ou sub-optimaux de metaux.

L4 ANSWER 18 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN A method by which many plants control organ shape is by regulated, differential cellular expansion. A gene invloved in regulating the expansion of plants cells, such as Arabidopsis thaliana root cells is COBRA which encodes a protein with a putative GPI anchor. Plants comprising altered root morphologies may be produced by control of COBRA activity. For example, roots which lack COBRA acivity comprise thiker, fatter roots (a CORE or cobphenotype) which are well suited for penetrating dense, compacted soil. Plants laking COBRA activity may be useful in applications wherein plant growth in areas with dense soil would be beneficial. The present invention comprises the Arobidopsis thaliana COBRA gene and COBRA protein and homologues thereof as well as mutated alleles of COBRA. Also provided are anti-COBRA antibodies, transgenic plants which overexpress COBRA and methods for identifying COBRA modulating substances.

ABFR L'invention concerne une methode permettant a de nombreuses plantes de reguler la forme de leurs organes par expansion cellulaire differenciee et regulee. <I>COBRA</I> est un gene implique dans la regulation de l'expansion de cellules vegetales, telles que les cellules de la racine d'Arabodopsis thaliana, et il code pour une proteine presentant une ancre GPI presumee. Il est possible de produire des plantes presentant des morphologies de racine alterees par regulation de l'activite COBRA. Par exemple, les racines ne presentant pas d'activite COBRA sont plus epaisses et plus grasses (phenotype CORE ou cob) et parfaitement adaptees a une penetration dans un sol dense et compact. Les plantes ne presentant pas d'activite COBRA peuvent servir dans des applications dans lesquelles la croissance de plantes dans des zones a sol dense est benefique. La presente invention concerne le gene <I>COBRA</I> d'Arabodopsis thaliana, la proteine COBRA, des homologues de ceux-ci ainsi que des alleles mutants de <I>COBRA</I>. L'invention concerne en outre des anticorps diriges contre COBRA, des plantes transgeniques qui surexpriment COBRA, ainsi que des methodes permettant d'identifier les substances modulant l'activite COBRA.

L4 ANSWER 19 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN The present invention is to a safe, biodegradable trace metal binding system that effectively delivers chromium, cobalt, copper, iron, manganese, molybdenum, selenium and zinc to animals. The method of preparing an animal foodstuff composition involves the steps of: providing transgenic algal cells comprising a nucleotide sequence, the nucleotide sequence being capable of expressing a non-native metal-binding protein in the transgenic algal cells; binding the metal-binding protein with at least one metal so as to produce a metal-bound adduct of the metal binding protein; and admixing the metal-bound adduct with animal foodstuff. The invention is also to a animal foodstuff composition comprising animal foodstuff and transgenic algal cells expressing a non-native metal-binding protein in the transgenic algal cells, such that the transgenic algal cells contain the metal-binding protein and the metal-binding protein being bound to a metal.

ABFR La presente invention concerne un systeme sur, biodegradable, capable de liaison avec les metaux-traces, qui apporte effectivement du chrome,

du cobalt, du cuivre, du fer, du manganese, du molybdene, du selenium et du zinc aux animaux. La methode de preparation d'une composition de nutrition animale consiste a obtenir des cellules alguaires transgeniques
qui comprennent une sequence nucleotidique pouvant exprimer dans les cellules alguaires transgeniques une proteine non native capable de liaison avec les metaux. La methode consiste ensuite a lier la proteine capable de liaison avec les metaux a au moins un metal de facon a produire un adduit lie au metal de ladite proteine. Elle consiste enfin a melanger l'adduit lie au metal avec les aliments pour animaux. L'invention concerne en outre une composition
de nutrition animale qui comprend des aliments pour animaux et des cellules alguaires
transgeniques, les cellules alguaires transgeniques contenant la proteine capable de liaison avec les metaux, et cette proteine etant liee a un metal.

L4 ANSWER 20 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN The present disclosure provides methods, recombinant **DNA** molecules, recombinant host cells containing the **DNA** molecules, and transgenic plant cells, plant tissue and plants which contain and express at least one **phytochelatin** biosynthetic coding sequence under the regulatory control of the strong ACT2 constitutive promoter or the light-inducible SRS1 promoter and/or a plant-expressible arsenate reductase coding sequence. Optionally the plant expressing the at least one **phytochelatin** biosynthetic enzyme coding sequence can also express a mercuric ion reductase coding sequence. The transgenic plants are **tolerant** of heavy **metal** ions, e.g., cadmium, arsenate and/or mercury, and can accumulate those ions from a contaminated environment, to thus, effect **phytoremediation** of a contaminated soil or water environment which contains mercury, cadmium and/or arsenate ions.

ABFR L'invention concerne des procedes, des molecules d'ADN recombinees, des cellules hotes recombinees contenant ces molecules d'ADN, ainsi que des cellules de plantes transgeniques, des tissus vegetaux et des plantes contenant et exprimant au moins une sequence codante de biosynthese de la phytochelatine, sous la dependance regulatrice du promoteur constitutif d'ACT2 fort ou du promoteur de SRS1 pouvant etre induit par la lumiere, et/ou une sequence codante d'arseniate reductase pouvant s'exprimer dans une plante. Le cas echeant, la plante exprimant au moins une sequence codante de l'enzyme de biosynthese de la phytochelatine peut egalement exprimer une sequence codante de la reductase reduisant les ions mercure. Ces plantes transgeniques resistent aux ions de metaux lourds, par exemple au cadmium, a l'arseniate et/ou au mercure, et elles peuvent accumuler ces ions a partir d'un environnement contamine, de maniere a executer une **phytoremediation** d'un environnement de sol ou d'eau contamine, contenant des ions de mercure, cadmium et/ou arseniate.

L4 ANSWER 21 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

ABEN The present invention relates to novel phytochelatin synthases and uses therefor.

ABFR L'invention concerne de nouvelles synthases phytochelatines et leurs utilisations.

L4 ANSWER 22 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN

L4 ANSWER 23 OF 32 USPATFULL on STN

AB The present invention is to a safe, biodegradable trace metal binding system that effectively delivers chromium, cobalt, copper, iron, manganese, molybdenum, selenium and zinc to animals. The method of preparing an animal foodstuff composition involves the steps of: providing transgenic algal cells comprising a nucleotide sequence, the nucleotide sequence being capable of expressing a non-native metal-binding protein in the transgenic algal cells; binding the metal-binding protein with at least one metal so as to produce a metal-bound adduct of the metal-binding protein; and admixing the

metal-bound adduct with animal foodstuff. The invention is also to a animal foodstuff composition comprising animal foodstuff and transgenic algal cells expressing a non-native metal-binding protein in the transgenic algal cells, such that the transgenic algal cells contain the metal-binding protein and the metal-binding protein being bound to a metal.

L4 ANSWER 24 OF 32 USPATFULL on STN
AB A method by which many plants control organ shape is by regulated, differential cellular expansion. A gene involved in regulating the expansion of plants cells, such as Arabidopsis thaliana root cells is COBRA which encodes a protein with a putative GPI anchor. Plants comprising altered root morphologies may be produced by control of COBRA activity. For example, roots which lack COBRA activity comprise thicker, fatter roots (a CORE or cob phenotype) which are well suited for penetrating dense, compacted soil. Plants lacking COBRA activity may be useful in applications wherein plant growth in areas with dense soil would be beneficial. The present invention comprises the Arabidopsis thaliana COBRA gene and COBRA protein and homologues thereof as well as mutated alleles of COBRA. Also provided are anti-COBRA antibodies, transgenic plants which overexpress COBRA and methods for identifying COBRA modulating substances.

L4 ANSWER 25 OF 32 USPATFULL on STN
AB Plant tissue specific gene expression by way of repressor-operator complexes, has enabled outcomes including, without limitation, male sterility and engineered plants having root-specific gene expression of relevant proteins to clean environmental pollutants from soil and water. A mercury hyperaccumulation strategy requires that mercuric ion reductase coding sequence is strongly expressed. The actin promoter vector, A2pot, engineered to contain bacterial lac operator sequences, directed strong expression in all plant vegetative organs and tissues. In contrast, the expression from the A2pot construct was restricted primarily to root tissues when a modified bacterial repressor (LacIn) was coexpressed from the light-regulated rubisco small subunit promoter in above-ground tissues. Also provided are analogous repressor operator complexes for selective expression in other plant tissues, for example, to produce male sterile plants.

L4 ANSWER 26 OF 32 USPATFULL on STN
AB The present disclosure provides methods, recombinant **DNA** molecules, recombinant host cells containing the **DNA** molecules, and transgenic plant cells, plant tissue and plants which contain and express at least one **phytochelatin** biosynthetic coding sequence under the regulatory control of the strong ACT2 constitutive promoter or the light-inducible SRS1 promoter and/or a plant-expressible arsenate reductase coding sequence. Optionally the plant expressing the at least one **phytochelatin** biosynthetic enzyme coding sequence can also express a mercuric ion reductase coding sequence. The transgenic plants are **tolerant** of heavy **metal** ions, e.g., cadmium, arsenate and/or mercury, and can accumulate those ions from a contaminated environment, to thus, effect **phytoremediation** of a contaminated soil or water environment which contains mercury, cadmium and/or arsenate ions.

L4 ANSWER 27 OF 32 USPATFULL on STN
AB The present invention is to a safe, biodegradable trace metal binding system that effectively delivers chromium, cobalt, copper, iron, manganese, molybdenum, selenium and zinc to animals. The method of preparing an animal foodstuff composition involves the steps of: providing transgenic algal cells comprising a nucleotide sequence, the nucleotide sequence being capable of expressing a non-native metal-binding protein in the transgenic algal cells; binding the metal-binding protein with at least one metal so as to produce a metal-bound adduct of the metal-binding protein; and admixing the metal-bound adduct with animal foodstuff. The invention is also to a animal foodstuff composition comprising animal foodstuff and transgenic algal cells expressing a non-native metal-binding protein in the

transgenic algal cells, such that the transgenic algal cells contain the metal-binding protein and the metal-binding protein being bound to a metal.

L4 ANSWER 28 OF 32 USPATFULL on STN
AB The present invention relates to novel phytochelatin synthases and uses thereof.

L4 ANSWER 29 OF 32 USPATFULL on STN
AB The invention provides methods and compositions for heavy metal **phytoremediation**, including plants which are genetically engineered to overexpress glutamylcysteine synthetase (**ECS**) and thereby provide enhanced heavy metal accumulation. In various embodiments, the plants comprise a **gene** encoding **ECS** operably linked to a heterologous promoter, the plant is a member of the Brassicaceae family. In general, the methods comprise the steps of growing such plants in a medium such as soil or water comprising a heavy metal, under conditions wherein **ECS** is overexpressed, whereby the plant provides enhanced accumulation of the heavy metal, whereby the heavy metal content of the medium is decreased.

L4 ANSWER 30 OF 32 USPATFULL on STN
AB The present invention provides nucleic acid sequences encoding a **metal** ion **resistance** protein, which are expressible in plant cells. The **metal resistance** protein provides for the enzymatic reduction of **metal** ions including by not limited to divalent Cu, divalent mercury, trivalent gold, divalent cadmium, lead ions and monovalent silver ions. Transgenic plants which express these coding sequences exhibit increased **resistance** to **metal** ions in the environment as compared with plants which have not been so genetically modified. Transgenic plants which are **resistant** to organomercurials including alkylmercury compounds, among others, are provided by the further inclusion of plant-expressible organomercurial lyase coding sequences. Furthermore, these transgenic plants which have been genetically modified to express the **metal resistance** coding sequences of the present invention can participate in the bioremediation of **metal** contamination via the enzymatic reduction of **metal** ions. Transgenic plants **resistant** to organomercurials can further mediate remediation of alkylmercury compounds in the environment by causing the freeing of mercuric ions and the reduction of the ionic mercury to the less toxic elemental mercury.

L4 ANSWER 31 OF 32 USPAT2 on STN
AB The invention provides methods and compositions for heavy metal **phytoremediation**, including plants which are genetically engineered to overexpress glutamylcysteine synthetase (**ECS**) and thereby provide enhanced heavy metal accumulation. In various embodiments, the plants comprise a **gene** encoding **ECS** operably linked to a heterologous promoter, the plant is a member of the Brassicaceae family. In general, the methods comprise the steps of growing such plants in a medium such as soil or water comprising a heavy metal, under conditions wherein **ECS** is overexpressed, whereby the plant provides enhanced accumulation of the heavy metal, whereby the heavy metal content of the medium is decreased.

L4 ANSWER 32 OF 32 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN
AB WO2004004445 A UPAB: 20040210
NOVELTY - A plastid transformation vector for stably transforming a plastid genome, comprising a first and second flanking sequence for integrating plastid transformation vector into plastid genome, a DNA sequence coding polypeptide for remediating contaminant compound, or operon with merA and merB genes, where a plant is transformed with plastid transformation vector and is capable of phytoremediating contaminant compound, is new.

DETAILED DESCRIPTION - A plastid transformation vector (I) for stably transforming a plastid genome, comprising as operably linked components, a first and second flanking sequence capable of integrating the plastid

transformation vector into the plastid genome, at least one DNA sequence coding for a polypeptide suitable for remediating a contaminant compound, or an operon comprising merA and merB genes, where a plant is stably transformed with the plastid transformation vector, and the plant is capable of phytoremediating a contaminant compound.

INDEPENDENT CLAIMS are also included for:

(1) a plant (II) stably transformed with (I);

(2) a progeny of (II);

(3) a seed of (II);

(4) a plant part of (II), comprising a plastid including the at least one heterologous DNA sequence coding for a protein suitable for inactivating a contaminant compound;

(5) a plant cell comprising a plastid including an expression cassette, the expression cassette comprising as operably linked components, a promoter functional in the plastid, an operon encoding a merAB operon, a transcription termination region, and DNA sequences flanking the expression cassette to facilitate stable integration of the expression cassette into a genome of the plastid by homologous recombination; and

(6) a plant cell comprising a plastid including an expression cassette, the expression cassette comprising as operably linked components, a promoter functional in the plastid, an operon encoding a **phytoremediation** operon, a transcription termination region, and DNA sequences flanking the expression cassette to facilitate stable integration of the expression cassette into a genome of the plastid by homologous recombination.

USE - (I) is useful for producing at least one DNA sequence coding for a protein suitable for inactivating a contaminant compound, which involves integrating (I) into the plastid genome of a plant cell, growing the plant cell to thus express the at least one heterologous DNA sequence coding for a protein suitable for inactivating a contaminant compound. The DNA sequence coding for a protein suitable for inactivating a contaminant compound is competent to **phytoremediate** a contaminant compound. (I) is also useful for detoxifying mercury by integrating (I) into a plastid genome of a plant cell culturing the plant cell to express merA and merB, exposing the plant cells to mercury. The operon is the merAB operon (claimed).

DESCRIPTION OF DRAWING(S) - The figure shows the effect of phenylmercuric acetate on the total dry weight per plant of 24-day old wild type and transgenic **tobacco** plant lines.

Dwg.6/15

=> d his

(FILE 'HOME' ENTERED AT 17:35:25 ON 16 JAN 2006)

FILE 'CAPLUS, BIOSIS, AGRICOLA, MEDLINE, CAOLD, CASREACT, CROPU, DGENE, DPCI, ENCOMPPAT, EPFULL, FRANCEPAT, FRFULL, FSTA, GBFULL, IFIPAT, IMSPATENTS, INPADOC, JAPIO, KOREAPAT, LITALERT, NTIS, PAPERCHEM2, PATDD, PATDPA, PATDPAFULL, PATDPASPC, PCTFULL, ...' ENTERED AT 17:36:46 ON 16 JAN 2006

L1 1725 S (ECS OR (GLUTAMYL (W) CYSTEINE (W) SYNTHETASE) OR PHYTOCHELAT
L2 1654 S (ECS OR (GLUTAMYL (W) CYSTEINE (W) SYNTHETASE) OR PHYTOCHELAT
L3 445 S L2 AND (TOBACCO OR NICOTIANA OR SILENE OR POPULUS OR POPLARS
L4 32 S L3 AND (PHYTOREMEDIATION OR PHYTOREMEDIATE OR PHYTOEXTRACTI

=> d l4 1-32

L4 ANSWER 1 OF 32 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:231236 CAPLUS
DN 139:57169
TI A plant genetically modified that accumulates Pb is especially promising for **phytoremediation**
AU Gisbert, Carmina; Ros, Roc; De Haro, Antonio; Walker, David J.; Pilar Bernal, M.; Serrano, Ramon; Navarro-Avino, Juan
CS Departamento de Biologia del Estres, CSIC, IBMCP, Valencia, 46022, Spain
SO Biochemical and Biophysical Research Communications (2003), 303(2),

440-445
CODEN: BBRCA9; ISSN: 0006-291X
PB Elsevier Science
DT Journal
LA English
RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 32 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:466174 CAPLUS
DN 137:30670
TI Use of arsenate reductase, γ-glutamylcysteine synthase, glutathione synthase or phytochelatin synthase for heavy **metal resistance** of transgenic plants and **phytoremediation** of environmental contamination
IN Meagher, Richard B.; Li, Yujing
PA University of Georgia Research Foundation, Inc., USA
SO PCT Int. Appl., 131 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2002048335	A2	20020620	WO 2001-US48105	20011213
WO 2002048335	C2	20030109		
WO 2002048335	A3	20030508		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002029025	A5	20020624	AU 2002-29025	20011213
US 2005198707	A1	20050908	US 2003-450731	20031204
PRAI US 2000-255001P	P	20001213		
US 2001-300525P	P	20010622		
WO 2001-US48105	W	20011213		

L4 ANSWER 3 OF 32 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:460905 CAPLUS
DN 137:364280
TI Identifying sugarcane expressed sequences associated with nutrient transporters and peptide metal chelators
AU Figueira, Antonio; Kido, Ederson Akio; Almeida, Raul Santin
CS Centro de Energia Nuclear na Agricultura, Universidade de Sao Paulo, Piracicaba, 13400-970, Brazil
SO Genetics and Molecular Biology (2001), 24(1-4), 207-220
CODEN: GMBIFG; ISSN: 1415-4757
PB Sociedade Brasileira de Genetica
DT Journal
LA English
RE.CNT 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 4 OF 32 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
AN 2003:274296 BIOSIS
DN PREV200300274296
TI A plant genetically modified that accumulates Pb is especially promising for **phytoremediation**.
AU Gisbert, Carmina; Ros, Roc; De Haro, Antonio; Walker, David J.; Bernal, M. Pilar; Serrano, Ramon; Navarro-Avino, Juan [Reprint Author]
CS Departamento de Biologia del estres, IBMCP, CSIC, Camino de Vera s.n., Valencia, 46022, Spain

jpavinyo@upvnet.upv.es
SO Biochemical and Biophysical Research Communications, (April 4 2003) Vol. 303, No. 2, pp. 440-445. print.
CODEN: BBRCA9. ISSN: 0006-291X.
DT Article
LA English
ED Entered STN: 11 Jun 2003
Last Updated on STN: 11 Jun 2003

L4 ANSWER 5 OF 32 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
AN 2002:375320 BIOSIS
DN PREV200200375320
TI Identifying sugarcane expressed sequences associated with nutrient transporters and peptide metal chelators.
AU Figueira, Antonio [Reprint author]; Kido, Ederson Akio; Almeida, Raul Santin
CS Centro de Energia Nuclear na Agricultura, Universidade de Sao Paulo, Av. Centenario 303, 13400-970, C.P. 96, Piracicaba, SP, Brazil
figueira@cena.usp.br
SO Genetics and Molecular Biology, (March, 2001) Vol. 24, No. 1-4, pp. 207-220. print.
ISSN: 1415-4757.
DT Article
LA English
ED Entered STN: 10 Jul 2002
Last Updated on STN: 10 Jul 2002

L4 ANSWER 6 OF 32 MEDLINE on STN
AN 2003144461 MEDLINE
DN PubMed ID: 12659836
TI A plant genetically modified that accumulates Pb is especially promising for **phytoremediation**.
AU Gisbert Carmina; Ros Roc; De Haro Antonio; Walker David J; Pilar Bernal M; Serrano Ramon; Navarro-Avino Juan
CS Departamento de Biologia del estres, IBMCP, CSIC, Camino de Vera s.n., 46022 Valencia, Spain.
SO Biochemical and biophysical research communications, (2003 Apr 4) 303 (2) 440-5.
Journal code: 0372516. ISSN: 0006-291X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200306
ED Entered STN: 20030328
Last Updated on STN: 20030621
Entered Medline: 20030620

L4 ANSWER 7 OF 32 EPFULL COPYRIGHT 2006 EPO/FIZ KA on STN

AN 1996:71454 EPFULL
DUPD 20030709 DUPW 200328
TIEN REMOVAL OF METALS FROM CONTAMINATED SUBSTRATES BY PLANTS.
TIFR ELIMINATION AU MOYEN DE PLANTES DE METAUX CONTENUS DANS DES SUBSTRATS CONTAMINES.
TIDE DAS ENTFERNEN VON METALLEN VON KONTAMINIERTEN SUBSTRATEN DURCH PFLANZEN.
IN SMITH, James, Andrew, Charles, Lilac Cottage Church Lane, Islip, Oxon OX5 2TA, GB;
KRAMER, Ute, 233c Raritan Avenue, Highland Park, NJ 08904, US;
BAKER, Alan, John, Martin, 50 Endcliffe Vale Road, Ranmoor, Sheffield S10 3EQ, GB
PA ISIS INNOVATION LIMITED, 2 South Parks Road, Oxford OX1 3UB, GB
PAN 1007200
AG McQueen, Andrew Peter, Stevens, Hewlett & Perkins 1 St. Augustine's Place, Bristol BS1 4UD, GB
AGN 98361
LAF English
LA English

LAP English
TL German; English; French
DT Patent
PIT EPA2 Application published without search report
PI EP 871750 A2 19981021
WO 9710346 19970320
DS AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
AI EP 1996-930273 A 19960912
WO 1996-GB2264 A 19960912
PRAI GB 1995-18599 A 19950912
IC.VER 7
ICM C12N015-82
ICS B09B003-00; C12N005-10; A01H005-00

AN 1996:71454 EPFULL UP 20051116
DUPD 20051116 DUPW 200546
TIEN REMOVAL OF METALS FROM CONTAMINATED SUBSTRATES BY PLANTS.
TIFR ELIMINATION AU MOYEN DE PLANTES DE METAUX CONTENUS DANS DES SUBSTRATS CONTAMINES.
TIDE DAS ENTFERNEN VON METALLEN VON KONTAMINIERTEN SUBSTRATEN DURCH PFLANZEN.
IN SMITH, James, Andrew, Charles, Lilac Cottage Church Lane, Islip, Oxon OX5 2TA, GB;
KRAMER, Ute, 233c Raritan Avenue, Highland Park, NJ 08904, US;
BAKER, Alan, John, Martin, 50 Endcliffe Vale Road, Ranmoor, Sheffield S10 3EQ, GB
PA ISIS INNOVATION LIMITED, 2 South Parks Road, Oxford OX1 3UB, GB
PAN 1007200
AG McQueen, Andrew Peter, Stevens, Hewlett & Perkins 1 St. Augustine's Place, Bristol BS1 4UD, GB
AGN 98361
LAF English
LA English
LAP English
TL German; English; French
DT Patent
PIT EPB1 Granted patent
PI EP 871750 B1 20040102
WO 9710346 19970320
DS AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
AI EP 1996-930273 A 19960912
WO 1996-GB2264 A 19960912
PRAI GB 1995-18599 A 19950912
REN RESOURCES, CONSERVATION AND RECYCLING, vol. 11, 1994, pages 41-49, XP000444293 A.J.M. BAKER ET AL.: "The possibility of in situ heavy metal decontamination of polluted soils using crops of metal- accumulating plants" cited in the application;
PLANT AND SOIL, vol. 164, 1994, pages 251-259, XP000650323 M.P. BERNAL ET AL.: "Comparison of the chemical changes in the rhizosphere of the nickel hyperaccumulator Alyssum murale with the non-accumulator Raphanus sativus" cited in the application;
NATURE, vol. 379, 1996, pages 635-638, XP002024758 U. KRAeMER ET AL.: "Free histidine as a metal chelator in plants that accumulate nickel"
REP WO 9429466 A
IC.VER 7
ICM C12N015-82
ICS B09B003-00; C12N005-10; A01H005-00

L4 ANSWER 8 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2005093078 PCTFULL ED 20051012 EW 200540
TIEN GENETICALLY MODIFIED PLANTS AND THEIR APPLICATIONS IN **PHYTOREMEDIATION**.
TIFR PLANTES GENETIQUEMENT MODIFIEES ET LEURS APPLICATIONS EN **PHYTOREMEDIATION**.
IN VERRET, Frederic, Campagne Maurin, Chemin du Thor, F-04100 MANOSQUE, FR [FR, FR];
GRAVOT, Antoine, 10 rue Mere de Dieu, F-13860 PEYROLLES, FR [FR, FR];
AUROY, Pascaline, 377 rue Hoche, F-84120 PERTUIS, FR [FR, FR];

VAVASSEUR, Alain, 18 allee du Montaiguet, F-13090 AIX EN PROVENCE, FR [FR, FR];
RICHAUD, Pierre, 14 rue des Ferrages, F-84120 LA BASTIDONNE, FR [FR, FR]

PA COMMISSARIAT A L'ENERGIE ATOMIQUE, 31-33 rue de la Federation, F-75015 PARIS, FR [FR, FR], for all designates States except US;
VERRET, Frederic, Campagne Maurin, Chemin du Thor, F-04100 MANOSQUE, FR [FR, FR], for US only;
GRAVOT, Antoine, 10 rue Mere de Dieu, F-13860 PEYROLLES, FR [FR, FR], for US only;
AUROY, Pascaline, 377 rue Hoche, F-84120 PERTUIS, FR [FR, FR], for US only;
VAVASSEUR, Alain, 18 allee du Montaiguet, F-13090 AIX EN PROVENCE, FR [FR, FR], for US only;
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AG CABINET ORES, 36 rue de St Petersbourg, F-75008 Paris, FR
LAF English
LA English
DT Patent
PI WO 2005093078 A1 20051006
DS W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
W-U: AE AL AM AT AZ BG BR BY BZ CN CO CR CZ DE DK EC EE EG ES FI GE HU JP KE KG KP KR KZ LS MD MX MZ NI PH PL PT RU SK SL TJ TR TT UA UG UZ YU
RW (ARIPO): BW GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
RW (EPO): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PL PT RO SE SI SK TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
RW-U (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2004-IB1271 A 20040318
ICM C12N015-82
ICS C07K014-415; C12N005-04

L4 ANSWER 9 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2005090583 PCTFULL ED 20051004 EW 200539
TIEN GENETICALLY MODIFIED PLANTS AND THEIR APPLICATIONS IN **PHYTOREMEDIATION**.
TIFR PLANTES GENETIQUEMENT MODIFIEES ET LEURS APPLICATIONS EN PHYTOTHERAPIE

IN RICHAUD, Pierre, 14, rue des Ferrages, F-84120 La Bastidonne, FR [FR, FR];
VERRET, Frederic, Campagne Maurin, Chemin du Thor, F-04100 Manosque, FR [FR, FR];
GRAVOT, Antoine, 10, rue Mere de Dieu, F-13860 Peyrolles, FR [FR, FR];
AUROY, Pascaline, 377, rue Hoche, F-84120 Pertuis, FR [FR, FR];
VAVASSEUR, Alain, 18, allee du Montaiguet, F-13090 Aix En Provence, FR [FR, FR]

PA COMMISSARIAT A L'ENERGIE ATOMIQUE, 31-33, rue de la Federation, F-75015 Paris, FR [FR, FR], for all designates States except US;
RICHAUD, Pierre, 14, rue des Ferrages, F-84120 La Bastidonne, FR [FR, FR], for US only;
VERRET, Frederic, Campagne Maurin, Chemin du Thor, F-04100 Manosque, FR [FR, FR], for US only;
GRAVOT, Antoine, 10, rue Mere de Dieu, F-13860 Peyrolles, FR [FR, FR], for US only;
AUROY, Pascaline, 377, rue Hoche, F-84120 Pertuis, FR [FR, FR], for US only;
VAVASSEUR, Alain, 18, allee du Montaiguet, F-13090 Aix En Provence, FR [FR, FR], for US only

AG CABINET ORES, 36, rue de St Petersbourg, F-75008 Paris, FR
LAF English
LA English
DT Patent

PI WO 2005090583 A1 20050929
DS W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
W-U: AE AL AM AT AZ BG BR BY BZ CN CO CR CZ DE DK EC EE EG ES FI GE HU JP KE KG KP KR KZ LS MD MX MZ NI PH PL PT RU SK SL TJ TR TT UA UG UZ YU
RW (ARIPO): BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
RW (EPO): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LT LU MC NL PL PT RO SE SI SK TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
RW-U (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2005-IB961 A 20050318
PRAI IB 2004-PCT/IB2004/0012 20040318
ICM C12N015-82
ICS C07K014-415; C12N005-04

L4 ANSWER 10 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2005070088 PCTFULL ED 20050809 EW 200531
TIEN CHIMERIC SEQUENCES FOR TISSUE-SPECIFIC GENE EXPRESSION IN PLANTS
TIFR SEQUENCES CHIMERIQUES UTILISEES A DES FINS D'EXPRESSION GENETIQUE A SPECIFICITE TISSULAIRE CHEZ DES PLANTES
IN MEAGHER, Richard, B., 110 Red Fox Run, Athens, Georgia 30605, US [US, US];
BALISH, Rebecca, S., 700 Mitchel Bridge Apartments #16, Athens, Georgia 30606, US [US, US];
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MCKINNEY, Elizabeth, C., 217 Elderberry Circle, Athens, Georgia 30605, US [US, US]
PA UNIVERSITY OF GEORGIA RESEARCH FOUNDATION, INC., DW Brooks Drive, Athens, Georgia 30602, US [US, US], for all designates States except US;
MEAGHER, Richard, B., 110 Red Fox Run, Athens, Georgia 30605, US [US, US], for US only;
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MCKINNEY, Elizabeth, C., 217 Elderberry Circle, Athens, Georgia 30605, US [US, US], for US only
AG FERBER, Donna, M., Greenlee, Winner and Sullivan, P.C., 4875 Pearl East Circle, Suite 200, Boulder, CO 80301, US
LAF English
LA English
DT Patent
PI WO 2005070088 A2 20050804
DS W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
W-U: AE AL AM AT AZ BG BR BY BZ CN CO CR CZ DE DK EC EE EG ES FI GE HU JP KE KG KP KR KZ LS MD MX MZ NI PH PL PT RU SK SL TJ TR TT UA UG UZ YU
RW (ARIPO): BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
RW (EPO): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LT LU MC NL PL PT RO SE SI SK TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
RW-U (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2005-US4844 A 20050118
PRAI US 2004-60/537,275 20040115

L4 ANSWER 11 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2004090142 PCTFULL ED 20041026 EW 200443
TIEN PLANTS HAVING MODIFIED GROWTH CHARACTERISTICS AND METHOD FOR MAKING THE SAME
TIFR PLANTES PRESENTANT DES CARACTERISTIQUES DE CROISSANCE MODIFIEES, ET LEUR PROCEDE DE PRODUCTION
IN SANZ MOLINERO, Ana, Isabel, Bernheimlaan 38, B-9050 Gentbrugge, BE [ES, BE]
PA CROPDESIGN N.V., Technlogiepark 3, B-9052 Zwijnaarde, BE [BE, BE], for all designates States except US;
SANZ MOLINERO, Ana, Isabel, Bernheimlaan 38, B-9050 Gentbrugge, BE [ES, BE], for US only
AG CROPDESIGN N.V., Technlogiepark 3, B-9052 Zwijnaarde, BE
LAF English
LA English
DT Patent
PI WO 2004090142 A2 20041021
DS W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
W-U: AE AL AM AT AZ BG BR BY BZ CN CO CR CZ DE DK EC EE ES FI GE HU JP KE KG KP KR KZ LS MD MX MZ NI PH PL PT RU SK SL TJ TR TT UA UG UZ YU
RW (ARIPO): BW GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
RW (EPO): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PL PT RO SE SI SK TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
RW-U (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2004-EP50519 A 20040414
PRAI EP 2003-03076086.2 20030414
ICM C12N015-82

L4 ANSWER 12 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2004087861 PCTFULL ED 20041019 EW 200442
TIEN BIOLOGICAL CONTAMINATION-REMOVAL METHOD
TIFR METHODE BIOLOGIQUE D'ELIMINATION DE CONTAMINANTS
TIES METODO BIOLOGICO DE ELIMINACION DE CONTAMINANTES
IN NAVARRO AVINO, Juan Pedro, Jativa, 3 d36, 46002 VALENCIA, 46002 VALENCIA, ES [ES, ES]
PA NAVARRO AVINO, Juan Pedro, Jativa, 3 d36, 46002 VALENCIA, 46002 VALENCIA, ES [ES, ES]
AG SANZ-BERMELL MARTINEZ, Alejandro, Jativa, 4, 46002 VALENCIA, 46002 VALENCIA, ES
LAF Spanish
LA Spanish
DT Patent
PI WO 2004087861 A2 20041014
DS W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
W-U: AE AL AM AT AZ BG BR BY BZ CN CO CR CZ DE DK EC EE ES FI GE HU JP KE KG KP KR KZ LS MD MX MZ NI PH PL PT RU SK SL TJ TR TT UA UG UZ YU
RW (ARIPO): BW GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
RW (EPO): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PL PT RO SE SI SK TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
RW-U (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2004-ES151 A 20040402
PRAI ES 2003-P200300857 20030402

ICM C12N

L4 ANSWER 13 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2004078905 PCTFULL ED 20040922 EW 200438
TIEN AGENTS FOR **PHYTOREMEDIATION**
TIFR AGENTS DE **PHYTOREMEDIATION**
IN VERBRUGGEN, Nathalie, Avenue Ernest Renan, 25, B-1030 Brussels, BE [BE, BE];
BERNARD, Catherine, Rue Vanderborght, 18, B-1081 Brussels, BE [BE, BE]
PA UNIVERSITE LIBRE DE BRUXELLES, Avenue F. D. Roosevelt, 50 CP 161, B-1050 Brussels, BE [BE, BE], for all designates States except US;
VERBRUGGEN, Nathalie, Avenue Ernest Renan, 25, B-1030 Brussels, BE [BE, BE], for US only;
BERNARD, Catherine, Rue Vanderborght, 18, B-1081 Brussels, BE [BE, BE], for US only
AG VAN MALDEREN, Joelle, Office Van Malderen, Place Reine Fabiola, 6/1, B-1083 Brussels, BE
LAF English
LA English
DT Patent
PI WO 2004078905 A2 20040916
DS W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
W-U: AE AL AM AT AZ BG BR BY BZ CN CO CR CZ DE DK EC EE ES FI GE HU JP KE KG KP KR KZ LS MD MX MZ NI PH PL PT RU SK SL TJ TR TT UA UG UZ YU
RW (ARIPO): BW GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
RW (EPO): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PL PT RO SE SI SK TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
RW-U (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2004-BE35 A 20040308
PRAI US 2003-60/453,271 20030307
ICM C12N

L4 ANSWER 14 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2004038027 PCTFULL ED 20040512 EW 200419
TIEN BIOREMEDIATION
TIFR BIOREMEDIATION
IN VAN CAMP, Wim, Witbakkerstraat 14, B-9051 Sint-Denijs-Westrem, BE [BE, BE]
PA CROPDESIGN N.V., Technologiepark 3, B-9052 Zwijnaarde, BE [BE, BE], for all designates States except US;
VAN CAMP, Wim, Witbakkerstraat 14, B-9051 Sint-Denijs-Westrem, BE [BE, BE], for US only
AG CROPDESIGN N.V., Technologiepark 3, B-9052 Zwijnaarde, BE
LAF English
LA English
DT Patent
PI WO 2004038027 A1 20040506
DS W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
RW (ARIPO): GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
RW (EPO): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2003-EP12051 A 20031024
PRAI EP 2002-02079481.4 20021024
ICM C12N015-82

ICS A01H005-00

L4 ANSWER 15 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2004004445 PCTFULL ED 20040122 EW 200403
TIEN **PHYTOREMEDIATION** OF CONTAMINANT COMPOUNDS VIA CHLOROPLAST GENETIC ENGINEERING
TIFR **PHYTOREMEDIATION** DE COMPOSES CONTAMINANTS PAR LE GENIE GENETIQUE DES CHLOROPLASTES
IN DANIELL, Henry, 1440 Pelican Bay Trail, Winter Park, FL 32792, US [US, US]
PA UNIVERSITY OF CENTRAL FLORIDA, Office of Technology Transfer, 4000 Central Florida Boulevard, Orlando, FL 32816-0150, US [US, US], for all designates States except US;
DANIELL, Henry, 1440 Pelican Bay Trail, Winter Park, FL 32792, US [US, US], for US only
AG CHRISTENBURY, T., Daniel, Piper Rudnick LLP, 3400 Two Logan Square, 18th and Arch Streets, Philadelphia, PA 19103, US
LAF English
LA English
DT Patent
PI WO 2004004445 A2 20040115
DS W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
RW (ARIPO): GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
RW (EPO): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2003-US20868 A 20030702
PRAI US 2002-60/393,451 20020703
ICM A01H005-00
ICS C12N015-82

L4 ANSWER 16 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2003100068 PCTFULL ED 20031215 EW 200349
TIEN REPORTER SYSTEM FOR PLANTS
TIFR SYSTEME DE RAPPORTEUR POUR VEGETAUX
IN MEIER, Carsten, Hjortholms Alle 42, DK-2400 Copenhagen NV, DK [DK, DK]
PA ARESA BIODETECTION APS, Solvgade 14A, DK-1307 Copenhagen K, DK [DK, DK], for all designates States except US;
MEIER, Carsten, Hjortholms Alle 42, DK-2400 Copenhagen NV, DK [DK, DK], for US only
AG BUDDE, SCHOU & OSTENFELD A/S, Vester Sogade 10, DK-1601 Copenhagen V, DK
LAF English
LA English
DT Patent
PI WO 2003100068 A1 20031204
DS W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
W-U: CZ DE DK EE FI
RW (ARIPO): GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
RW (EPO): AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2003-IB2081 A 20030530
PRAI DK 2002-PA200200823 20020529
ICM C12N015-82

L4 ANSWER 17 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2002090491 PCTFULL ED 20021121 EW 200246
TIEN MODIFICATION OF METAL-HANDLING IN PLANTS

TIFR MODIFICATION DE LA GESTION DES METAUX PAR LES PLANTES
IN SPANGENBERG, German, 56 Arthur Street, Bundoora, Victoria 3083, AU [UY, AU];
SAWBRIDGE, Timothy, Ivor, 174 Keele Street, Collingwood, Victoria 3066, AU [GB, AU];
ONG, Eng, Kok, 19 Overland Drive, Vermont South, Victoria 3133, AU [MY, AU];
EMMERLING, Michael, 249 Nepean Street, Greensborough, Victoria 3088, AU [DE, AU]
PA AGRICULTURE VICTORIA SERVICES PTY LTD, 475 Mickleham Road, Attwood, Victoria 3049, AU [AU, AU], for all designates States except US;
AGRESEARCH LIMITED, 5th Floor, Tower Block, Ruakura Research Centre, East Street, N/A Hamilton, NZ [NZ, NZ], for all designates States except US;
SPANGENBERG, German, 56 Arthur Street, Bundoora, Victoria 3083, AU [UY, AU], for US only;
SAWBRIDGE, Timothy, Ivor, 174 Keele Street, Collingwood, Victoria 3066, AU [GB, AU], for US only;
ONG, Eng, Kok, 19 Overland Drive, Vermont South, Victoria 3133, AU [MY, AU], for US only;
EMMERLING, Michael, 249 Nepean Street, Greensborough, Victoria 3088, AU [DE, AU], for US only
AG FREEHILLS CARTER SMITH BEADLE, Level 43, 101 Collins Street, Melbourne, Victoria 3000, AU
LAF English
LA English
DT Patent
PI WO 2002090491 A2 20021114
DS W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
RW (ARIPO): GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
RW (EPO): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2002-AU565 A 20020507
PRAI AU 2001-PR 4820 20010507
ICM C12N

L4 ANSWER 18 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2002088310 PCTFULL ED 20021115 EW 200245
TIEN COBRA GENE AND USES THEREOF
TIFR GENE COBRA ET SES UTILISATIONS
IN BENFEY, Philip, N., 3 Washington Square Village #6A, New York, NY 10012, US [US, US];
SCHINDELMAN, Gary, 42 North Parkwood Avenue, #4, Pasadena, CA 91107, US [US, US]
PA NEW YORK UNIVERSITY, 70 Washington Square South, New York, NY 10012, US [US, US], for all designates States except US;
BENFEY, Philip, N., 3 Washington Square Village #6A, New York, NY 10012, US [US, US], for US only;
SCHINDELMAN, Gary, 42 North Parkwood Avenue, #4, Pasadena, CA 91107, US [US, US], for US only
AG GOLDMAN, Michael, L., Nixon Peabody, LLC, 1300 Clinton Square, Rochester, NY 14604, US
LAF English
LA English
DT Patent
PI WO 2002088310 A2 20021107
DS W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
RW (ARIPO): GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM

RW (EPO): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2002-US12956 A 20020425
PRAI US 2001-60/287,510 20010430
ICM C12N

L4 ANSWER 19 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2002056703 PCTFULL ED 20020801 EW 200230
TIEN METHOD OF MAKING MICROALGAL-BASED ANIMAL FOODSTUFF SUPPLEMENTS, MICROALGAL-SUPPLEMENTED ANIMAL FOODSTUFFS AND METHOD OF ANIMAL NUTRITION
TIFR METHODE DE PRODUCTION DE COMPLEMENTS ALIMENTAIRES POUR ANIMAUX A BASE DE MICROALGUES, ALIMENTS POUR ANIMAUX AVEC COMPLEMENTS A BASE DE MICROALGUES ET METHODE DE NUTRITION ANIMALE
IN SAYRE, Richard, 528 Park Boulevard, Worthington, OH 43085, US;
WAGNER, Richard, 3416 Ashwood Drive, Bloomington, IN 47401, US
PA THE OHIO STATE UNIVERSITY, 1960 Kenny Road, Columbus, OH 43210-1063, US [US, US];
PHYCOTRANSGENICS L.L.C., 3416 Ashwood Drive, Bloomington, IN 47401, US [US, US]
AG GILCREST, Roger, A., Standley & Gilcrest LLP, Suite 210, 495 Metro Place South, Dublin, OH 43017, US
LAF English
LA English
DT Patent
PI WO 2002056703 A1 20020725
DS W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW
RW (ARIPO): GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM
RW (EPO): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2002-US1182 A 20020115
PRAI US 2001-09/765,142 20010118
ICM A23K001-165
ICS A23K001-17

L4 ANSWER 20 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2002048335 PCTFULL ED 20020709 EW 200225
TIEN **METAL RESISTANT** PLANTS AND **PHYTOREMEDIATION** OF ENVIRONMENTAL CONTAMINATION
TIFR PLANTES RESISTANTES AUX METAUX ET **PHYTOREMEDIATION** DE LA CONTAMINATION ENVIRONNEMENTALE
IN MEAGHER, Richard, B., 635 Sandstone Drive, Athens, GA 30605, US [US, US];
LI, Yujing, 1907 South Milledge Avenue, A-7, Athens, GA 30605, US [CN, US]
PA UNIVERSITY OF GEORGIA RESEARCH FOUNDATION, INC., DW Brooks Drive, Athens, GA 30602, US [US, US], for all designates States except US;
MEAGHER, Richard, B., 635 Sandstone Drive, Athens, GA 30605, US [US, US], for US only;
LI, Yujing, 1907 South Milledge Avenue, A-7, Athens, GA 30605, US [CN, US], for US only
AG FERBER, Donna, M., Greenlee, Winner and Sullivan, P.C., 5370 Manhattan Circle, Suite 201, Boulder, CO 80303, US
LAF English
LA English
DT Patent
PI WO 2002048335 A2 20020620
DS W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZM ZW
RW (ARIPO): GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
RW (EAPO): AM AZ BY KG KZ MD RU TJ TM

RW (EPO): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
AI WO 2001-US48105 A 20011213
PRAI US 2000-60/255,001 20001213
US 2001-60/300,525 20010622
ICM C12N009-02
ICS C12N009-10; C12N015-82; B09C001-10

L4 ANSWER 21 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 2000071695 PCTFULL ED 20020515
TIEN NOVEL PHYTOCHELATIN SYNTHASES AND USES THEREFOR
TIFR NOUVELLE SYNTHASES PHYTOCHELATINES ET LEURS UTILISATIONS
IN REA, Philip, A.;
VATAMANIUK, Olena, K.;
MARI, Stephane;
LU, Yu-Ping;
SCHROEDER, Julian, I.;
KIM, Eugene, J.;
CLEMENS, Stephan
PA THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA;
REA, Philip, A.;
VATAMANIUK, Olena, K.;
MARI, Stephane;
LU, Yu-Ping;
SCHROEDER, Julian, I.;
KIM, Eugene, J.;
CLEMENS, Stephan
LA English
DT Patent
PI WO 2000071695 A1 20001130
DS W: AE AG AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE
DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE
KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO
NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US
UZ VN YU ZA ZW GH GM KE LS MW MZ SD SL SZ TZ UG ZW AM AZ
BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE
IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN
TD TG
AI WO 2000-US14008 A 20000519
PRAI US 1999-09/315,449 19990520
US 1999-09/354,123 19990715
ICM C12N015-05
ICS C12N015-29; C12N015-31; C12N015-52; C12N015-63; C12N015-82; A01H005-00

L4 ANSWER 22 OF 32 PCTFULL COPYRIGHT 2006 Univentio on STN
AN 1997010346 PCTFULL
no bibliographic data available - please use FPI for PI information

L4 ANSWER 23 OF 32 USPATFULL on STN
AN 2005:323934 USPATFULL
TI Method of making microalgal-based animal foodstuff supplements, microalgal-supplemented animal foodstuffs and method of animal nutrition
IN Sayre, Richard T., Worthington, OH, UNITED STATES
Wagner, Richard E., Bloomington, IN, UNITED STATES
PA The Ohio State University Research Foundation, Columbus, OH, UNITED STATES (U.S. corporation)
Phycotransgenics L.L.C., Bloomington, IN, UNITED STATES (U.S. corporation)
PI US 2005281840 A1 20051222
AI US 2004-914391 A1 20040809 (10)
RLI Division of Ser. No. US 2001-765142, filed on 18 Jan 2001, GRANTED, Pat. No. US 6932980
DT Utility
FS APPLICATION
LN.CNT 884
INCL INCLM: 424/195.170
INCLS: 424/442.000
NCL NCLM: 424/195.170

NCLS: 424/442.000
IC [7]
ICM C12P021-06
ICS A61K035-80; A23K001-165
IPCI C12P0021-06 [ICM,7]; A61K0035-80 [ICS,7]; A23K0001-165 [ICS,7]
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 24 OF 32 USPATFULL on STN
AN 2005:256934 USPATFULL
TI COBRA GENE AND USES THEREOF
IN Benfey, Philip N., Chapel Hill, NC, UNITED STATES
Schindelman, Gary, Pasadena, CA, UNITED STATES
PA NEW YORK UNIVERSITY (U.S. corporation)
PI US 2005223433 A1 20051006
AI US 2002-133985 A1 20020425 (10)
PRAI US 2001-287510P 20010430 (60)
DT Utility
FS APPLICATION
LN.CNT 1961
INCL INCLM: 800/298.000
INCLS: 536/023.600; 435/069.100
NCL NCLM: 800/298.000
NCLS: 435/069.100; 536/023.600
IC [7]
ICM A01H005-00
ICS C12P021-06; C12N015-82
IPCI A01H0005-00 [ICM,7]; C12P0021-06 [ICS,7]; C12N0015-82 [ICS,7]
IPCR A01H0005-00 [I,A]; A01H0005-00 [I,C]; C12N0015-82 [I,A];
C12N0015-82 [I,C]; C12P0021-06 [I,A]; C12P0021-06 [I,C]
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 25 OF 32 USPATFULL on STN
AN 2005:249775 USPATFULL
TI Chimeric sequences for tissue-specific gene expression in plants
IN Meagher, Richard B., Athens, GA, UNITED STATES
Balish, Rebecca S., Oxford, OH, UNITED STATES
Tehryung, Kim, Athens, GA, UNITED STATES
McKinney, Elizabeth C., Athens, GA, UNITED STATES
PI US 2005216976 A1 20050929
AI US 2005-38900 A1 20050118 (11)
PRAI US 2004-537275P 20040115 (60)
DT Utility
FS APPLICATION
LN.CNT 3595
INCL INCLM: 800/286.000
INCLS: 800/317.000; 800/319.000; 435/468.000
NCL NCLM: 800/286.000
NCLS: 435/468.000; 800/317.000; 800/319.000
IC [7]
ICM A01H001-00
ICS C12N015-82; A01H005-00; A01H007-00
IPCI A01H0001-00 [ICM,7]; C12N0015-82 [ICS,7]; A01H0005-00 [ICS,7];
A01H0007-00 [ICS,7]
IPCR A01H0001-00 [I,A]; A01H0001-00 [I,C]; A01H0005-00 [I,A];
A01H0005-00 [I,C]; A01H0007-00 [I,A]; A01H0007-00 [I,C];
C12N0015-82 [I,A]; C12N0015-82 [I,C]
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 26 OF 32 USPATFULL on STN
AN 2005:228851 USPATFULL
TI **Metal resistant** plants and **phytoremediation**
of environmental contamination
IN Meagher, Richard B., Athens, GA, UNITED STATES
Li, Yujing, Athens, GA, UNITED STATES
Dhankher, Om P., Athens, GA, UNITED STATES
PI US 2005198707 A1 20050908
AI US 2003-450731 A1 20011213 (10)
WO 2001-US48105 20011213

20031204 PCT 371 date
PRAI US 2003-255001P 20001213 (60)
US 2003-300525P 20010622 (60)
DT Utility
FS APPLICATION
LN.CNT 3597
INCL INCLM: 800/280.000
INCLS: 530/370.000; 435/468.000; 435/189.000; 435/193.000
NCL NCLM: 800/280.000
NCLS: 435/189.000; 435/193.000; 435/468.000; 530/370.000
IC [7]
ICM A01H001-00
ICS C12N015-82; C07K014-415; C12N009-02; C12N009-10
IPCI A01H0001-00 [ICM,7]; C12N0015-82 [ICS,7]; C07K0014-415 [ICS,7]; C12N0009-02 [ICS,7]; C12N0009-10 [ICS,7]
IPCR A01H0001-00 [I,A]; A01H0001-00 [I,C]; C07K0014-415 [I,A]; C07K0014-415 [I,C]; C12N0009-02 [I,A]; C12N0009-02 [I,C]; C12N0009-10 [I,A]; C12N0009-10 [I,C]; C12N0015-82 [I,A]; C12N0015-82 [I,C]
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 27 OF 32 USPATFULL on STN
AN 2005:211126 USPATFULL
TI Method of making microalgal-based animal foodstuff supplements, microalgal-supplemented animal foodstuffs and method of animal nutrition
IN Sayre, Richard, 528 Park Blvd., Worthington, OH, UNITED STATES 43085
Wagner, Richard, 3416 Ashwood Dr., Bloomington, IN, UNITED STATES 47401
PI US 6932980 B1 20050823
AI US 2001-765142 20010118 (9)
DT Utility
FS GRANTED
LN.CNT 788
INCL INCLM: 424/442.000
INCLS: 424/400.000; 424/439.000; 424/093.100; 424/093.200; 424/195.170
NCL NCLM: 424/442.000
NCLS: 424/093.100; 424/093.200; 424/195.170; 424/400.000; 424/439.000
IC [7]
ICM A23K001-165
ICS A23K001-17
IPCI A23K0001-165 [ICM,7]; A23K0001-17 [ICS,7]
IPCR A23K0001-16 [I,A]; A23K0001-16 [I,C]; A23K0001-175 [I,A]; A23K0001-175 [I,C]
EXF 424/400; 424/439; 424/442; 424/489; 424/93.1; 424/93.2; 424/93.7; 424/195.17; 424/1.17
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 28 OF 32 USPATFULL on STN
AN 2002:317552 USPATFULL
TI Phytochelatin synthases and uses therefor
IN Rea, Philip A., Ardmore, PA, United States
Vatamaniuk, Olena K., Philadelphia, PA, United States
Mari, Stephane, Jenkintown, PA, United States
Lu, Yu-Ping, Oak Park, CA, United States
Schroeder, Julian I., La Jolla, CA, United States
Kim, Eugene J., San Diego, CA, United States
Clemens, Stephan, Halle, GERMANY, FEDERAL REPUBLIC OF
PA The Trustees of the University of Pennsylvania, Philadelphia, PA, United States (U.S. corporation)
University of California, La Jolla, CA, United States (U.S. corporation)
PI US 6489537 B1 20021203
AI US 1999-354123 19990715 (9)
RLI Continuation-in-part of Ser. No. US 1999-315449, filed on 20 May 1999, now abandoned
PRAI US 1998-95624P 19980807 (60)
DT Utility
FS GRANTED
LN.CNT 3552
INCL INCLM: 800/278.000

INCLS: 800/298.000; 800/295.000; 800/288.000; 800/320.300; 800/306.000;
435/069.100; 435/320.100; 435/419.000; 435/468.000; 536/023.100;
536/023.200; 536/023.600; 536/023.700
NCL NCLM: 800/278.000
NCLS: 435/069.100; 435/320.100; 435/419.000; 435/468.000; 536/023.100;
536/023.200; 536/023.600; 536/023.700; 800/288.000; 800/295.000;
800/298.000; 800/306.000; 800/320.300
IC [7]
ICM C12N015-09
ICS C12N015-29; C12N015-31; C12N015-82; A01H005-00
IPCI C12N0015-09 [ICM,7]; C12N0015-29 [ICS,7]; C12N0015-31 [ICS,7];
C12N0015-82 [ICS,7]; A01H0005-00 [ICS,7]
IPCR C12N0009-10 [I,A]; C12N0009-10 [I,C]; C12N0015-82 [I,A];
C12N0015-82 [I,C]; C12P0021-02 [I,A]; C12P0021-02 [I,C]
EXF 800/298; 800/278; 800/295; 800/320.3; 800/288; 800/306; 536/23.1;
536/23.2; 536/23.6; 536/23.7; 435/69.1; 435/320.1; 435/419; 435/468
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 29 OF 32 USPATFULL on STN
AN 2002:28132 USPATFULL
TI Heavy metal **phytoremediation**
IN Terry, Norman, Berkeley, CA, UNITED STATES
Pilon-Smits, Elizabeth, Fort Collins, CO, UNITED STATES
Zhu, Yong Liang, Berkeley, CA, UNITED STATES
PI US 2002016983 A1 20020207
US 6576816 B2 20030610
AI US 2001-933549 A1 20010820 (9)
RLI Continuation of Ser. No. US 1999-365349, filed on 30 Jul 1999, PENDING
DT Utility
FS APPLICATION
LN.CNT 628
INCL INCLM: 800/306.000
INCLS: 800/278.000; 800/288.000
NCL NCLM: 800/306.000
NCLS: 435/069.100; 435/419.000; 435/468.000; 800/278.000; 800/288.000;
800/298.000
IC [7]
ICM A01H005-00
ICS C12N015-82
IPCI A01H0005-00 [ICM,7]; C12N0015-82 [ICS,7]
IPCI-2 C12N0015-09 [ICM,7]; C12N0015-31 [ICS,7]; C12N0015-82 [ICS,7];
A01H0005-00 [ICS,7]
IPCR B09C0001-10 [I,A]; B09C0001-10 [I,C]; C12N0009-00 [I,A];
C12N0009-00 [I,C]; C12N0015-82 [I,A]; C12N0015-82 [I,C]
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 30 OF 32 USPATFULL on STN
AN 97:84118 USPATFULL
TI **Metal resistance** sequences and transgenic plants
IN Meagher, Richard B., Athens, GA, United States
Summers, Anne O., Athens, GA, United States
PA University of Georgia Research Foundation Inc., Athens, GA, United
States (U.S. corporation)
PI US 5668294 19970916
AI US 1995-427097 19950421 (8)
DT Utility
FS Granted
LN.CNT 4478
INCL INCLM: 800/205.000
INCLS: 800/DIG.040; 800/DIG.048; 800/DIG.049; 800/DIG.052; 800/DIG.015;
435/069.100; 435/172.300; 435/320.100; 536/023.200; 536/023.700;
536/024.100
NCL NCLM: 800/278.000
NCLS: 435/069.100; 435/320.100; 435/468.000; 536/023.200; 536/023.700;
536/024.100; 800/287.000; 800/294.000; 800/298.000; 800/317.000
IC [6]
ICM C12N015-31
ICS C12N015-82; C12N015-29; A01H005-00

IPCI C12N0015-31 [ICM,6]; C12N0015-82 [ICS,6]; C12N0015-29 [ICS,6];
A01H0005-00 [ICS,6]
IPCR B09C0001-10 [I,A]; B09C0001-10 [I,C]; C12N0009-02 [I,A];
C12N0009-02 [I,C]; C12N0009-88 [I,A]; C12N0009-88 [I,C];
C12N0015-52 [I,A]; C12N0015-52 [I,C]; C12N0015-82 [I,A];
C12N0015-82 [I,C]
EXF 800/205; 800/DIG.9; 800/DIG.15; 800/DIG.40; 800/DIG.52; 800/DIG.48;
800/DIG.49; 435/172.3; 435/240.4; 435/69.1; 435/320.1; 536/23.2;
536/23.7; 536/24.1
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 31 OF 32 USPAT2 on STN
AN 2002:28132 USPAT2
TI Heavy metal **phytoremediation**
IN Terry, Norman, Berkeley, CA, United States
Pilon-Smits, Elizabeth, Fort Collins, CO, United States
Zhu, Yong Liang, Berkeley, CA, United States
PA The Regents of the University of California, Oakland, CA, United States
(U.S. corporation)
PI US 6576816 B2 20030610
AI US 2001-933549 20010820 (9)
RLI Continuation of Ser. No. US 1999-365349, filed on 30 Jul 1999
DT Utility
FS GRANTED
LN.CNT 623
INCL INCLM: 800/306.000
INCLS: 800/278.000; 800/288.000; 800/298.000; 435/069.100; 435/468.000;
435/419.000
NCL NCLM: 800/306.000
NCLS: 435/069.100; 435/419.000; 435/468.000; 800/278.000; 800/288.000;
800/298.000
IC [7]
ICM C12N015-09
ICS C12N015-31; C12N015-82; A01H005-00
IPCI A01H0005-00 [ICM,7]; C12N0015-82 [ICS,7]
IPCI-2 C12N0015-09 [ICM,7]; C12N0015-31 [ICS,7]; C12N0015-82 [ICS,7];
A01H0005-00 [ICS,7]
IPCR B09C0001-10 [I,A]; B09C0001-10 [I,C]; C12N0009-00 [I,A];
C12N0009-00 [I,C]; C12N0015-82 [I,A]; C12N0015-82 [I,C]
EXF 800/278; 800/306; 800/288; 800/298; 435/69.1; 435/468; 435/419
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 32 OF 32 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN
AN 2004-099323 [10] WPIDS
DNN N2004-079147 DNC C2004-041059
TI Plastid transformation vector for transforming plastid genome having first
and second flanking sequence for integrating the plastid transformation
vector into the plastid genome.
DC C06 C07 D15 D16 P13
IN DANIELL, H
PA (UYFL-N) UNIV CENT FLORIDA
CYC 102
PI WO 2004004445 A2 20040115 (200410)* EN 98 A01H005-00
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS
LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK
DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR
KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT
RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA
ZM ZW
AU 2003251764 A1 20040123 (200459) A01H005-00
ADT WO 2004004445 A2 WO 2003-US20868 20030702; AU 2003251764 A1 AU 2003-251764
20030702
FDT AU 2003251764 A1 Based on WO 2004004445
PRAI US 2002-393451P 20020703
IC ICM A01H005-00
ICS C12N015-82

=> FIL STNGUIDE
COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION
FULL ESTIMATED COST | 413.53 | 413.95

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION
CA SUBSCRIBER PRICE | -2.25 | -2.25

FILE 'STNGUIDE' ENTERED AT 18:05:48 ON 16 JAN 2006

FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Jan 13, 2006 (20060113/UP).

=> d l4 4 kwic
YOU HAVE REQUESTED DATA FROM FILE 'CAPLUS, BIOSIS, MEDLINE, EPFULL, PCTFULL, USPATFULL, USPAT2, WPIDS' - CONTINUE? (Y)/N:y

L4 ANSWER 4 OF 32 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN

TI A plant genetically modified that accumulates Pb is especially promising for **phytoremediation**.

AB From a number of wild plant species growing on soils highly contaminated by heavy **metals** in Eastern Spain, **Nicotiana** glauca R. Graham (shrub **tobacco**) was selected for biotechnological modification, because it showed the most appropriate properties for **phytoremediation**. This plant has a wide geographic distribution, is fast-growing with a high biomass, and is repulsive to herbivores. Following Agrobacterium mediated transformation, the induction and **overexpression** of a wheat **gene** encoding **phytochelatin** synthase (TaPCS1) in this particular plant greatly increased its **tolerance** to **metals** such as Pb and Cd, developing seedling roots 160% longer than wild type plants. In addition, seedlings of transformed plants grown in mining soils containing high levels of Pb (1572 ppm) accumulated double concentration of this heavy **metal** than wild type. These results indicate that the transformed N. glauca represents a highly promising new tool for use in **phytoremediation** efforts.

IT Methods & Equipment
Agrobacterium mediated transformation: genetic techniques, laboratory techniques; **phytoremediation**: applied and field techniques

IT Miscellaneous Descriptors
soil pollution

ORGN . . .
(species): gene vector
Taxa Notes
Bacteria, Eubacteria, Microorganisms

ORGN Classifier
Solanaceae 26775
Super Taxa
Dicotyledones; Angiospermae; Spermatophyta; Plantae
Organism Name
Nicotiana glauca (species) [shrub **tobacco** (common)]: seedling
Taxa Notes
Angiosperms, Dicots, Plants, Spermatophytes, Vascular Plants

=> d l4 4 clm
YOU HAVE REQUESTED DATA FROM FILE 'CAPLUS, BIOSIS, MEDLINE, EPFULL, PCTFULL, USPATFULL, USPAT2, WPIDS' - CONTINUE? (Y)/N:y

'CLM' IS NOT A VALID FORMAT
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or the STNGUIDE file for information on formats available in
individual files.
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=> d l4 4
YOU HAVE REQUESTED DATA FROM FILE 'CAPLUS, BIOSIS, MEDLINE, EPFULL, PCTFULL, USPATFULL, USPAT2, WPIDS' - CONTINUE? (Y)/N:y

L4 ANSWER 4 OF 32 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
AN 2003:274296 BIOSIS
DN PREV200300274296
TI A plant genetically modified that accumulates Pb is especially promising for **phytoremediation**.
AU Gisbert, Carmina; Ros, Roc; De Haro, Antonio; Walker, David J.; Bernal, M. Pilar; Serrano, Ramon; Navarro-Avino, Juan [Reprint Author]
CS Departamento de Biologia del estres, IBMCP, CSIC, Camino de Vera s.n., Valencia, 46022, Spain
jpavinyo@upvnet.upv.es
SO Biochemical and Biophysical Research Communications, (April 4 2003) Vol. 303, No. 2, pp. 440-445. print.
CODEN: BBRCA9. ISSN: 0006-291X.
DT Article
LA English
ED Entered STN: 11 Jun 2003
Last Updated on STN: 11 Jun 2003